

Appl. No. 10/810,296
Dated 1/2/2008

Reply to Office Communication of 12/27/ 2007

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Remarks begin on page 17 of this paper.

The proposed amendments to the claims 1-2 will
replace all prior versions of the claims 1-2 in said
application.

The proposed amendments to the claim 1 to be sent to
Primary examiner Dr. Lori A. Clown by the fax of
December 12, 2007 comprising:

Claim 1 (currently amended): A multiparameter
method of ~~screening for the diagnosis, the prevention~~
~~or the treatment~~ evaluating disease risk, disease
cause, therapeutic target, and therapeutic efficiency
of atherosclerosis-related coronary heart disease
(CHD) or stroke comprising;

defining the disease as atherosclerosis-related
CHD or stroke or other cardiovascular disease;

defining the normal as free from said disease;

defining the following parameters as
atherosclerotic parameters consisting of c =

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the Low-density lipoprotein (LDL) concentration parameter in mg/dL or c = the C-reactive protein (CRP) concentration parameter in mg/L, p = the blood systolic pressure parameter in mmHg or p = the blood diastolic pressure parameter in mmHg, f = the heart rate parameter in s^{-1} , a = the radius parameter along arterial radius in cm, T = the temperature parameter of blood plasma in $^{\circ}C$, α = the angle parameter between gravity and the mean velocity of blood fluid in arterial vessels in degree and z = the axial position parameter of diffusion flux along the inner wall in the axial direction of arterial vessels in cm, called the diffusion length parameter;

measuring, for an individual having the measured values of disease, said atherosclerotic parameters of the following expressions:

$$J = A c^{\frac{11}{9}} (v^3 D^{16})^{\frac{1}{27}} \left(\frac{g \cos \alpha + f u}{z} \right)^{\frac{2}{9}} \quad (1.1)$$

or

$$J = B c^{\frac{11}{9}} p^{\frac{1}{3}} T^{\frac{16}{27}} a^{\frac{2}{3}} f^{\frac{2}{9}} z^{-\frac{2}{9}} \quad (1.2)$$

and

$$J = E c^{\frac{11}{9}} D^{\frac{16}{27}} z^{-\frac{2}{9}} (\cos \alpha)^{\frac{2}{9}} \quad (1.3)$$

wherein J = the mass transfer flux in 10^{-5}

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$g/(cm^2s)$, A, B and E = the constants of conversion factors, v = the eddy velocity of blood fluid in arterial vessels in cm/s, u = the mean velocity of the blood fluid in cm/s, D = the diffusion coefficient in cm^2/s , and g = the gravitational acceleration in cm/s^2 ;

the measuring, for an individual not having the disease, the normal values of said atherosclerotic parameters;

determining the disease risks yielded by the difference between said measured values and said normal values of said atherosclerotic parameters;

adding all said disease risks ~~together yields~~ containing a total risk of said disease;

determining a disease risk level containing said total risk of said disease;

selecting an atherosclerotic risk factor related to an atherosclerotic parameter that is the greatest contribution to said total risk of said disease so as to result in said risk

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factor as a primary therapy target of said disease;

selecting a greater flux between the LDL mass transfer flux and the monocyte mass transfer flux so as to result in said greater flux as a primary cause in said disease;

selecting a greater concentration level between the LDL level in serum and the CRP level in blood plasma so as to result in said greater level as a secondary therapy target of said disease;

determining a relative ratio between currently said total risk and previously said total risk so as to yield said relative ratio as a therapeutic efficacy of said disease;

repeating above-mentioned said methods until said disease risk level is reduced to a normal level for said individual who requires the therapy to prevent or to treat atherosclerosis-related CHD or stroke;

above-mentioned said methods are written as an executable computer program named the MMA.exe,

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or another name, to be installed into a general purpose digital computer device to accomplish said methods; and

~~to output outputting a result of said methods~~
said total disease risk, disease cause,
therapeutic target and therapeutic efficiency
~~to a display or a memory or another computer on~~
~~a network, or to a user or a display.~~

The proposed amendments to the claim 2 to be sent to Examiner Mr. Jason M. Sims by the fax of December 10, 2007 comprising:

Claim 2 (Currently amended): A method as in claim 1, wherein the nine disease risks are yielded by the differences between the measured values and the normal values of the nine atherosclerotic parameters, said method comprising the steps of:

a measured value, c_m in mg/dL, of the individual's LDL concentration in human serum is determined using a medical technique for measuring the concentration of blood constituents or said c_m is determined by the physician,

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a normal value, c_n in mg/dL, of said LDL concentration is determined by the physician or said $c_n = 100$ mg/dL for adult,

calculating $\frac{J_m - J_n}{J_n}$, where J_m yielded by

substituting said c_m into said equation (1.1)
and J_n yielded by substituting said C_n into
said equation (1.1), yields:

$$R_1 = \left(\frac{c_m}{c_n} \right)^{\frac{11}{9}} - 1 \quad (1)$$

substituting said C_m and said C_n into ~~the~~
~~following expression (1)~~ where $c_m \geq c_n$ and

calculating (1) yields the disease risk R_1 caused by the LDL concentration parameter related to the atherosclerotic risk factors being an elevated LDL concentration in human serum, high-fat diet, hypercholesterolemia or other risk factors that increase said LDL concentration;

a measured value, C_m in mg/L, of the individual's CRP concentration in human blood plasma is determined using a medical technique for measuring the concentration of blood

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constituents or said C_m is determined by the physician,

a normal value, C_n in mg/L, of said CRP concentration and an equivalent factor, F , are determined by the physician wherein $F = \left(\frac{D_c}{D_l} \right)^{\frac{16}{27}}$, D_c = the CRP diffusion coefficient and D_l = the LDL diffusion coefficient or said $c_n = 1.0$ mg/L for adult and said $F = 0.66$,

calculating $\frac{J_m - J_n}{J_n}$, where J_m yielded by

substituting said C_m into said equation (1.1)
and J_n yielded by substituting said C_n into
said equation (1.1), yields:

$$R_2 = F \left(\left(\frac{c_m}{c_n} \right)^{\frac{11}{9}} - 1 \right) \quad (2)$$

substituting said C_m , said C_n and said F into ~~the~~
~~following expression~~ (2) where $c_m \geq c_n$ and

calculating (2) yields the disease risk R_2 caused by the CRP concentration parameter related to the atherosclerotic risk factors being an elevated CRP level in human blood

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plasma, systemic inflammation, infectious agents or other risk factors that increase said CRP level;

a measured value, P_m in mmHg, of the individual's blood systolic pressure is determined using a medical technique for measuring the human blood pressure or said P_m is determined by the physician,

a normal value, P_n in mmHg, of said systolic pressure is determined by the physician or said $P_n = 120$ mmHg for adult,

calculating $\frac{J_m - J_n}{J_n}$, where J_m yielded by

substituting said P_m into said equation (1.2) and J_n yielded by substituting said P_n into said equation (1.2), yields:

$$R_3 = \left(\frac{P_m}{P_n} \right)^{\frac{1}{3}} - 1 \quad (3)$$

substituting said P_m and said P_n into ~~the following expression~~ (3) where $p_m \geq p_n$ and

calculating (3) yields the disease risk R_3 caused by the systolic pressure parameter

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related to the atherosclerotic risk factors being an elevated level of blood systolic pressure, family history of hypertension or other risk factors that increase said systolic pressure;

a measured value, P_m in mmHg, of the individual's blood diastolic pressure is determined using a medical technique for measuring the human blood pressure or said P_m is determined by the physician,

a normal value, P_n in mmHg, of said blood diastolic pressure is determined by the physician or said $P_n = 70$ mmHg for adult,

calculating $\frac{J_m - J_n}{J_n}$, where J_m yielded by

substituting said P_m into said equation (1.2)
and J_n yielded by substituting said P_n into
said equation (1.2), yields:

$$R_4 = \left(\frac{P_m}{P_n} \right)^{\frac{1}{3}} - 1 \quad (4)$$

substituting said P_m and said P_n into ~~the~~
~~following expression (4)~~ where $p_m \geq p_n$ and